WASHINGTON WATER POWER SPOKANE RIVER
UPPER FALLS HYDROELECTRIC DEVELOPMENT
Spokane River, approx. 0.5 miles northeast
of intersection of Spokane Falls Blvd.
and Post St.
Spokane
Spokane County
Washington

HAER No. WA-162

HAER
WASH
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WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
Columbia Cascades Support Office
National Park Service
909 First Avenue

## I. GENERAL DESCRIPTION OF THE UPPER FALLS HED:

Washington Water Power's (WWP) Upper Falls Hydroelectric Development (HED) is located in the NE1/4, SW 1/4, Section 18, T25N, R43EWM. The power plant, buried penstock, and gate house are situated in Riverfront Park, which is the former site of the World Exposition held in Spokane, Washington, in 1974 (hereafter Expo 74). See *Figure 1*, "Sketch Plan of Riverfront Park" (page 7) which shows the location of the Upper Falls power house and gate house. The ca. 100 acre park is open all year, and annually attracts thousands of visitors.

As a result of the development of Riverfront Park, the historic setting for the Upper Falls HED has been strikingly altered from its setting at the time of its construction in 1921-1922. At that time, the area comprising what is now Riverfront Park, was strictly industrial, with railroad yards and depots dominating the area (see *Figure 2*, "Historic Drawing of the Upper Falls HED," page 8). Over the years, as federal highway systems linked the country together in an efficient highway grid, and as air transport expanded dramatically, railroads continued to lose customers for their rolling stock.[1] Thus between 1922 (completion of the Upper Falls HED) and 1974 (Expo 74) railroad transportation declined markedly in Spokane as it did elsewhere in the United States.[2] By the 1960s, the site of the future Expo 74 had deteriorated into a mostly abandoned and unsightly collection of obsolete buildings, structures, and objects, most of which were associated with railroad transportation systems. All of the former rails, and most of the railroad associated structures, were removed as a part of the development of Expo 74.

Because of the distance between the Upper Falls HED gate house and power plant (ca. 400 ft.), the buried penstock, and the very different architectural styles of the above-ground structures, the gate house and power plant appear to be distinct and unrelated facilities. In addition, the groomed and landscaped park, with its collection of modern buildings and mature trees and shrubbery, augments the visual detachment of the gate house and power plant. The reinforced concrete power house that contains a single vertical-shaft turbine-generator unit is of neoclassical design. Its formal symmetry and unusual height compared to its breadth enhances its monumental quality (see historic photograph WA-162 -1). The power plant is not visible from the gate house. By contrast, the small (ca. 46 ft. x 14 ft.) gate house, constructed of common bond brick, is of very simple design and lacks the artistic embellishments of the power plant.

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[1]Donald W. Meinig, "Spokane and the Inland Empire: Historical Geographic Systems and a Sense of Place," in David H. Stratton, ed., *Spokane and the Inland Empire: An Interior Pacific northwest anthology* (Pullman, WA: Washington State University Press, 1991), 23-24.

[2]*Ibid.*

Today, the Upper Falls HED is the only significant industrial property that lies within Riverfront Park. Despite its vastly altered setting and loss of its historical feeling and associations, the Upper Falls HED retains a high degree of integrity regarding engineering and architectural features. It is among the least altered of WWP's six hydroelectric developments on the Spokane River. The Upper Falls HED was determined eligible for listing in the National Register of Historic Places (NRHP) in 1988.[3] WWP plans on replacing the original intake gates and gate-lifting mechanisms and slightly altering the gate house structure in order to accommodate the new gate-lifting device. The present gate lifting mechanism was first altered in 1954.[4] The trash-raking equipment was installed in 1969 and is, therefore, not historic.[5]

The south channel dam will not be modified as a part of WWP's present undertaking. Likewise, the two rolling sector gates and four vertical lift gates that comprise the control works for the north channel containment works of the Upper Falls HED, the power plant, and its generating and ancillary equipment will not be changed. Thus, three components are the subject of this partial Historic American Engineering Record (HAER) documentation. The Upper Falls HED intake gates and gate-lifting mechanisms and the gate house are recorded separately as HAER No. WA-162 -A and WA-162-B. The purpose of this partial HAER recordation (WA-162) is to provide an historic context for the entire Upper Falls HED.

## II. LAYOUT OF THE UPPER FALLS HED:

Originally, the south channel joined the Spokane River at the juncture of the middle and north channels, thus forming Havermale Island. The foot of Havermale Island is where the Upper Falls HED is now located. However, over a period of years following construction of the Upper Falls HED, the ca. 400 foot-long ditch that contained the penstock which carries water from the Upper Falls head gates in the south channel of the Spokane River to the Upper Falls power plant was eventually filled, thus connecting the former island to the south bank of the Spokane River. The Upper Falls gate house stands over the containment works for the south channel of the Spokane River, and the 370 ft.-long buried penstock proceeds from the control works in a northwesterly direction to the Upper Falls power house. The power house is situated on the south bank of the north channel of the river (see *Figure 1*, "Sketch Plan of Riverfront Park, page 7).

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[3]Leonard Garfield, Architectural Historian, Office of Archaeology and Historic Preservation, Olympia, WA, in correspondence to the WWP, 29 June 1988.

[4]N. W. Humphrey, WWP, "Production, Maintenance and Construction [report]," 26 July 1954, in the Engineering Archives of the WWP, Spokane, WA.

[5]Verne Sattler, WWP, "Mechanical Structure Shop [report])," 1969, in the Engineering Archives of the WWP, Spokane, WA.

## III. HISTORICAL BACKGROUND OF THE UPPER FALLS HED:

Completed in 1922, the Upper Falls HED was the last of five hydroelectric developments constructed by the WWP on the Spokane River. A sixth power plant on the river, the Nine Mile HED, was later acquired by the WWP. Located in the heart of the city of Spokane, the 10,000 Kw Upper Falls facility was constructed to augment the older (constructed in 1889 and expanded in 1903) Monroe Street HED (7,200 Kw capacity) located just downstream (west of the Upper Falls HED) on the lower falls of the Spokane River.

Before construction of the Upper Falls HED (1921-1922), only 53% of the total available head within the series of falls (upper, middle and lower falls) that passed through what was, and is, the city of Spokane's commercial core district, had been utilized for electrical generation and transmission.[6] Moreover, prior to construction of the Upper Falls HED, the Monroe Street HED functioned, in main, to power Spokane's electric street railway system. Until completion of the Upper Falls HED, the Monroe Street HED functioned principally as a run-of the-river facility, thus subjecting operation of the power plant to the vagaries and extremes of weather-related conditions, such as excessive spring runoff and summer drought. With the installation of the Upper Falls control works, which consisted of two sixty-foot rolling sector gates and four vertical lift gates, a dependable storage impoundment ensured a controlled flow of water to the turbine-generator units of both the Monroe Street and Upper Falls HEDs.

Thus, as a result of Spokane's rapid growth in electrical consumer demand--from 2,337 customers in 1900 to 38,291 customers in 1920--and the attendant street lighting and other electrical requirements that such rapid expansion entailed, the WWP needed to generate more power to satisfy the city's present and future growth.[7] According to L. J. Pospisil, the WWP engineer in charge of structural and engineering work during construction of the Upper Falls HED, "there still remained the problem of a dependable source of a-c. energy for power outside the economic limits of the Edison system [Monroe Street HED] and for residential lighting" in the city of Spokane.[8] The WWP built the Upper Falls HED principally to service those needs.

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[6]L. J. Pospisil, "Upper Falls Development of the Washington Water Power Company in Spokane, Wash.," *Journal of the American Institute of Electrical Engineers*, vol. XLII, no. 11 (1923): 1134.

[7]Mr. Birkett, "Discussion No. 2," (Paper delivered in a series of meetings with employees of the WWP, Spokane WA, 1923) 11, in the Public Relations Vault, File FCA/1.11, WWP, Spokane, Washington.

[8]L. J. Pospisil, "Upper Falls Development of the Washington Water Power Company in Spokane, Wash.," 1134.

In addition, the Upper Falls HED served an important role in flood control for the city of Spokane. Because of filling resulting from bridge-building and other construction over the years, by 1920 the main branch of the south channel of the Spokane River had been completely filled. The shaded area in *Figure 2*, "Historic Drawing of the Upper Falls HED," (page 8), shows the extent of man-made fill that had occured by 1921.[9] This constricted flow in the vicinity of Spokane Falls to such an extent that flood heights had been raised ca. 3 ft. since 1894, a year of record flooding on the Spokane River.[10] Had the flood of 1894 recurred in the years intervening between that event and completion of the Upper Falls HED a large portion of the industrial and commercial core of the city of Spokane could have flooded.[11]

## IV. SOURCES:

Birkett (Mr.). "Discussion No. 2." Paper delivered in a series of meetings with employees of the WWP, Spokane WA, 1923. In the Public Relations Vault, File FCA/1.11, WWP, Spokane, Washington.

Garfield, Leonard, Architectural Historian, Office of Archaeology and Historic Preservation, Olympia, WA. Correspondence to the WWP, 29 June 1988.

Humphrey, N. W. (WWP). "Production, Maintenance and Construction [report], " 26 July 1954. In the Engineering Archives of the WWP, Spokane, WA.

Meinig, Donald W. "Spokane and the Inland Empire: Historical Geographic Systems and a Sense of Place." *Spokane and the Inland Empire: An Interior Pacific northwest anthology*, edited by David H. Stratton. Pullman, WA: Washington State University Press, 1991.

Pospisil, L. J. "Upper Falls Development of the Washington Water Power Company in Spokane, Wash." *Journal of the American Institute of Electrical Engineers*, vol. XLII, no. 11, 1923: 1134-1140.

Sattler, Verne (WWP) "Mechanical Structure Shop [report])," 1969. In the Engineering Archives of the WWP, Spokane, WA.

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[9]Stevens & Koons, Consulting Engineers (Report prepared for the WWP, Spokane, WA, 15 September 1921), "Report on the Dam and Channel Improvements Upper Spokane Falls Hydro-Electric Development of the Washington Water Power Co." (Report prepared for the WWP, Spokane, WA, 15 September 1921), 2, in the Public Relations Vault, File FC1/1/34, WWP, Spokane, WA., 2.

[10]Ibid., 2-3.

[11]Ibid.

Stevens & Koons, Consulting Engineers. "Report on the Dam and Channel Improvements Upper Spokane Falls Hydro-Electric Development of the Washington Water Power Co." (Report prepared for the WWP, Spokane, WA, 15 September 1921). In the Public Relations Vault File FC1/1.34, WWP, Spokane, WA.

## V. PROJECT INFORMATION:

This documentation has been prepared at the request of WWP, which is planning to replace the original gates, gate-lifting mechanisms, and trash rakes with new steel vertical-lift gates, gate-lifting mechanism, trash racks, and trash rake-lifting equipment. These upgrades are essential for the safe and efficient functioning of the south channel containment works. No modifications to any other components of the Upper Falls HED will occur as a part of WWP's present upgrades (as discussed in the first section of this report).

WWP has volunteered to participate in partial HAER recordation of the gates, gate-lifting mechanisms, and gate house. The partial recordation effort is not a part of Federal review requested under Section 106 of the National Historic Preservation Act of 1966, as amended. WWP proceeded with partial HAER recordation of the Upper Falls HED because of their commitment to preserving a written and photographic record of character-defining features (the gates, gate-lifting mechanism, and gate house) of a NRHP-eligible property that will be altered as a part of their present proposed upgrades to the Upper Falls HED. The purpose of this partial HAER recordation effort is to provide an historic context for the development of the Upper Falls HED.

Project Manager and Principal Investigator for partial HAER recordation of the Upper Falls HED was Robin Bruce of Western Historical Services, Post Falls, Idaho. Dr. Harvey S. "Pete" Rice of Colfax, Washington, conducted photographic documentation for the project. Documentation provided in the recordation resulted principally from Ms. Bruce's research in various archives of the WWP, Spokane, WA, and other pertinent repositories and sources, field inspection of the Upper Falls gate house and associated structures, and interviews with knowledgeable informants.

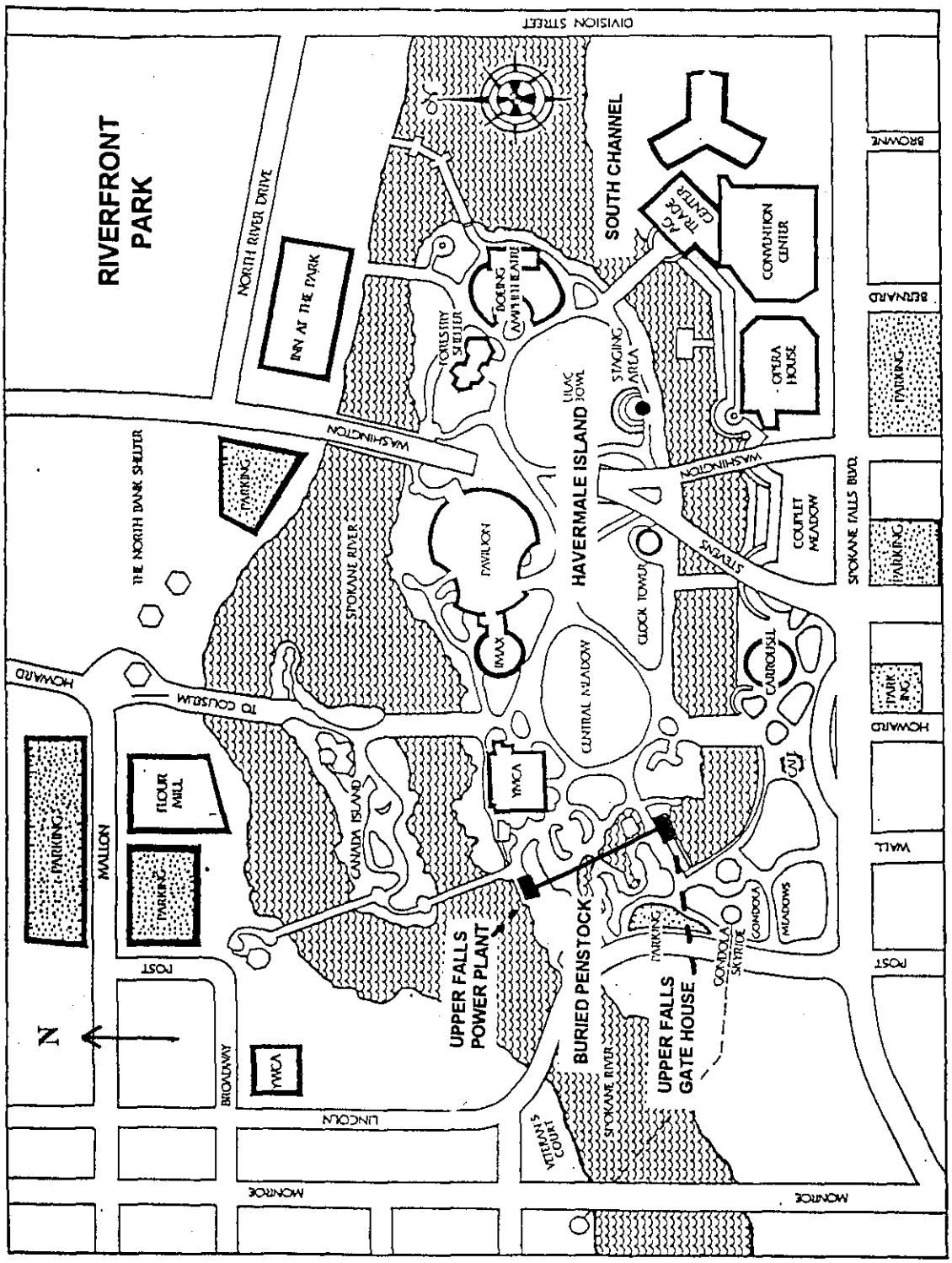


*Figure 1*, "Sketch Plan of Riverfront Park"

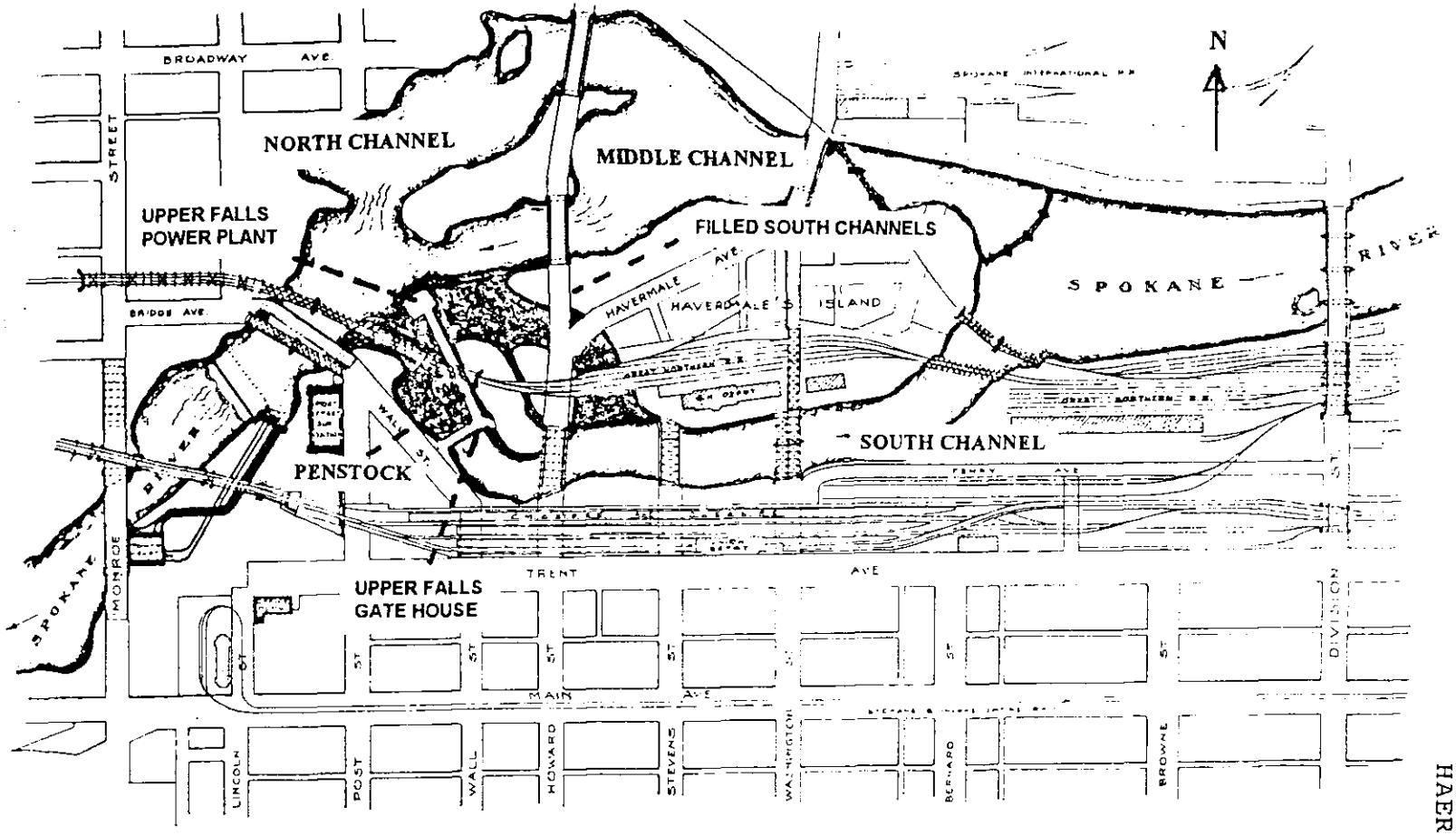


*Figure 2,* "Historic Drawing of the Upper Falls HED" *

*Adapted from a drawing prepared by Stevens & Coons, Consulting Engineers, Portland, Oregon, 15 September 1921, in a report for the WWP entitled "Report on the Dam and Channel Improvements Upper Spokane Falls Hydro-Electric Development of the Washington Water Power Co." (original report in the Public Relations Archives, WWP, Spokane, WA).